

Operations &
Maintenance Facility

BID DOCUMENTS



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Revision Number	Issued by	Revision Description	Revision
CWO TITLE			

PROCESS SYMBOLS, NOTES AND ABBREVIATIONS

DATE	09/24/2014		
SCALE	AS NOTED		
OWN	CCA	CHK.	CRL
PRCS. No.	444505		
OWG. No.			

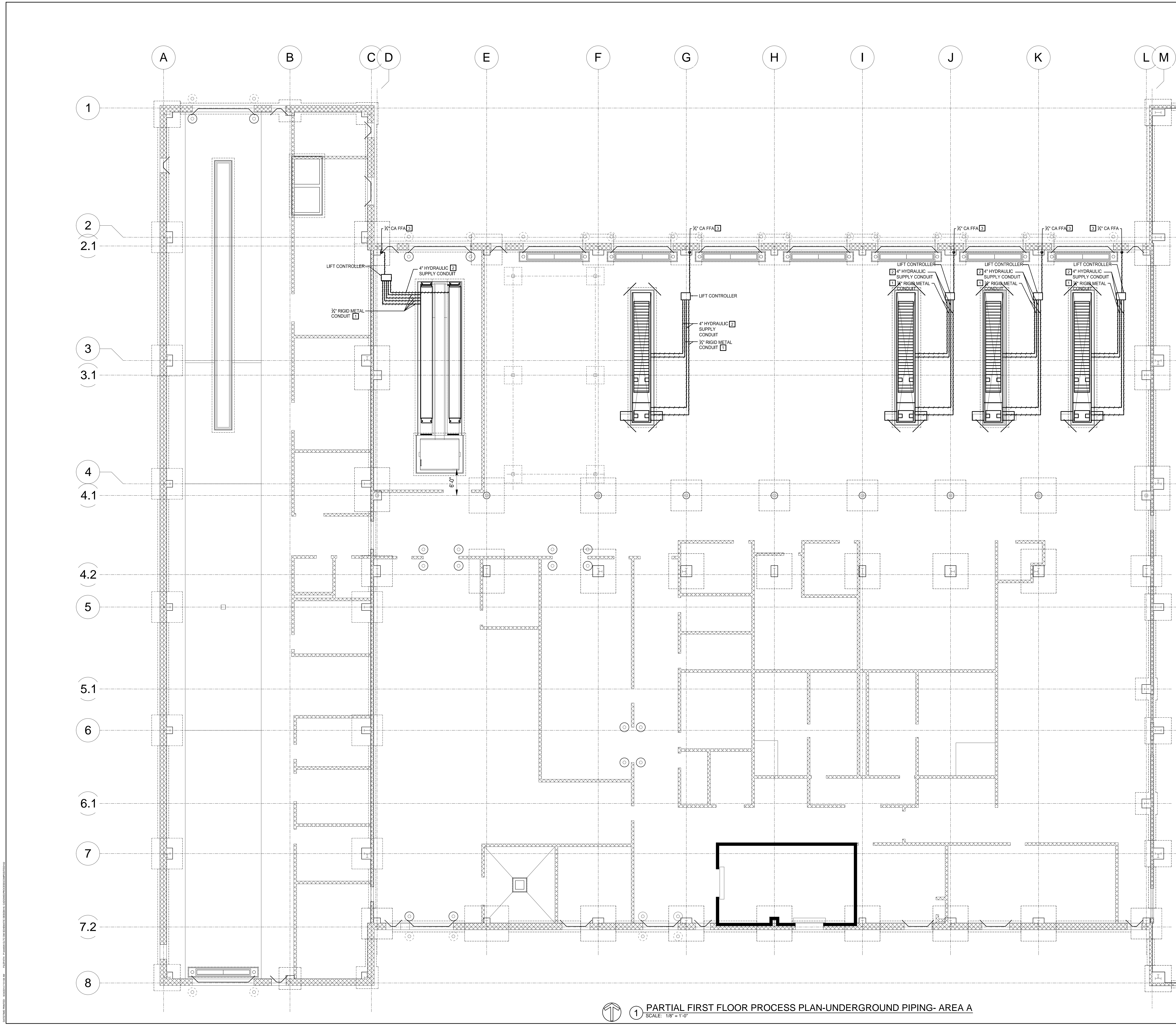
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ASC	ABOVE SUSPENDED CEILING	HB	HOSE BIBB
AFF	ABOVE FINISHED FLOOR	HC	HVAC CONTRACTOR
AG	ABOVE GRADE	HW	HOT WATER
AC	AIR COMPRESSOR	HVFU	HOT WATER FIXTURE UNITS
AD	AREA DRAIN	HWR	HOT WATER RECIRCULATION
BAV	BALANCING VALVE	HWCP	HOT WATER CIRCULATING PUMP
BC	BALANCING COCK	HP	HORSEPOWER
BFF	BELOW FINISHED FLOOR	HPHW	HIGH PRESSURE HOT WATER
BFP	BACKFLOW PREVENTER	HWV	HIGH PRESSURE WASTE WATER (REUSE)
BT	BATHTUB	IFGC	INTERNATIONAL FUEL GAS CODE
BV	BALL VALVE	INV	INVERT ELEVATION
BTU	BRITISH THERMAL UNIT	IV	INDIVIDUAL VENT
CA	COMPRESSED AIR	KS	KITCHEN SINK
CB	CATCH BASIN		
CEB	CONCRETE EQUIPMENT BASE	L	LAVATORY
CFH	CUBIC FEET PER HOUR	LT	LAUNDRY TUB
CI	CAST IRON	LPD	LOW POINT DRAIN
CP	CIRCULATING PUMP		
CS	CLINICAL SINK	M	METER
CO	CLEANOUT	MH	MANHOLE
CW	COLD WATER	MSB	MOP SERVICE BASIN
CV	COMMON VENT	MV	MIXING VALVE
CWV	COMBINATION WASTE AND VENT	NIC	NOT IN CONTRACT
CWVFU	COLD WATER FIXTURE UNITS	NTS	NOT TO SCALE
CKV	CHECK VALVE		
		OI	OIL INTERCEPTOR
D	DRAIN LINE		
DDCV	DOUBLE DETECTOR CHECK VALVE	P	PUMP
DF	DRINKING FOUNTAIN	PCAC	PIPE CONNECTION AT CEILING
DFU	DRAINAGE FIXTURE UNITS	PC	PLUMBING CONTRACTOR
DS	DOWNSPOUT	PD	PUMP DISCHARGE
DTF	DOWN THRU FLOOR	PRV	PRESSURE REDUCING VALVE
DN	DOWN		
DI	DUCTILE IRON		
DSN	DOWN SPOUT NOZZLE		
DTF	DOWN THROUGH FLOOR	RD	ROOF DRAIN
DWH	DOMESTIC WATER HEATER	RVL	RELIEF VENT
DW FRP	DOUBLE WALL FIBERGLASS REINFORCED PIPE	RWL	RAIN WATER LEADER
DWV	DRAIN-WASTE-VENT		
DEF	DIESEL EXHAUST FLUID	SAN	SANITARY SEWER
EC	ELECTRICAL CONTRACTOR	SD	SCRUBBER DRAIN
EO	ENGINE OIL	SF	SQUARE FOOT
ETP	ELECTRONIC TRAP PRIMING MANIFOLD	SH	SHOWER
EQ	EQUIPMENT	SK	SINK
EST	EMERGENCY STORM SEWER	SP	SUMP PUMP
EW	ELECTRIC WATER COOLER	SS	SERVICE SINK
EWV	ELECTRIC WATER HEATER	ST	STORM SEWER
EXIST.	EXISTING	STR	STRAINER
ET	EXPANSION TANK		
F	FAHRENHEIT DEGREES	TP	TRAP PRIMER
FBO	FURNISHED BY OTHERS	TW	TEMPERED WATER
FCO	FLOOR CLEANOUT		
FD	FLOOR DRAIN	UNO	UNLESS NOTED OTHERWISE
FDC	FIRE DEPARTMENT CONNECTION	UR	URINAL
FF	FROM FLOOR ABOVE	UST	UNDERGROUND STORAGE TANK
FFB	FROM FLOOR BELOW	V	VENT
FH	FIRE HYDRANT		
FL	FLUID LUBRICATION	VB	VACUUM BREAKER
FP	FIRE PROTECTION PIPING	VTR	VENT THROUGH ROOF
FS	FLOOR SINK		
FT	FOOTING TILE		
FRP	FIBERGLASS REINFORCED PIPE	WC	WATER CLOSET
G	GAS	WCO	WALL CLEANOUT
GC	GENERAL CONTRACTOR	WF	WASH FOUNTAIN
GL.V	GLOBE VALVE	WG	WATER GAUGE
GM	GAS METER	WH	WALL HYDRANT
GPH	GALLONS PER HOUR	WHA	WATER HAMMER ARRESTOR
GPM	GALLONS PER MINUTE	WM	WATER METER
GT	GREASE TRAP	WSV	WASTE STACK VENT
GWV	GAS WATER HEATER	WV	WET VENT
GV	GATE VALVE	WW	WASTE WATER (REUSE)
		YCO	YARD CLEANOUT
		YH	YARD HYDRANT

	SHUT-OFF VALVE (GATE, BALL, ETC.)
	BALANCING VALVE (X INDICATES GPM)
	SHUT-OFF VALVE IN RISER
	CHECK VALVE
	STRAINER
	GLOBE VALVE
	PRESSURE REDUCING VALVE
	MIXING VALVE
	RELIEF VALVE (X INDICATES
	P - PRESSURE
	T - TEMPERATURE
	PT - COMBINATION PRESS/TEMP
	BRANCH CONNECTION - BOTTOM
	BRANCH CONNECTION - TOP
	ELBOW - TURNED DOWN
	ELBOW - TURNED UP
	CAP
	CLEANOUT (FLOOR/WALL)
	FLOOR DRAIN
	ROOF DRAIN
	WALL HYDRANT
	HOSE BIBB
	REDUCER
	UNION
	PIPE GUIDE (PG)
	PIPE ANCHOR (PA)
	WATER HAMMER ARRESTOR (X INDICATES PDI SIZE)
	FLEXIBLE CONNECTOR
	DIRECTION OF FLOW
	DIRECTION OF DOWNWARD PITCH
	PRESSURE GAUGE
	THERMOMETER
	PRESSURE/TEMPERATURE TAP
	WATER METER/GAS METER
	CIRCULATING PUMP
	UNDERGROUND PIPING/CONDUIT

CA	COMPRESSED AIR
DEF	DIESEL EXHAUST FLUID
ATF	AUTOMATIC TRANSMISSION FLUID
CG	COMMON GREASE
EC	ENGINE COOLANT
EO-B	ENGINE OIL - BUS
EO-P	ENGINE OIL - PARATRANSIT
GO	GEAR OIL
UEC	USED ENGINE COOLANT
UEO	USED ENGINE OIL
WWF	WINDSHIELD WASHER FLUID
DI	DIESEL FUEL

1. THIS LEGEND SHEET IS FOR THE PLUMBING CONTRACTOR REFERENCE ONLY. NOT ALL SYMBOLS AND/OR ABBREVIATIONS MAY APPLY TO THIS PARTICULAR PROJECT. ANY ADDITIONS OR OMISSIONS FROM THIS LEGEND SHEET DOES NOT IMPLY INCLUSION AND/OR EXCLUSION OF ANY PARTICULAR ITEM FROM THE PROJECT.
2. THE PLANS ARE DIAGRAMMATIC AND INDICATE ONLY THE SIZE AND GENERAL ARRANGEMENT OF PIPING AND EQUIPMENT. EXACT LOCATION OF ALL ELEMENTS SHALL BE DETERMINED BY THE FIELD WORK EXPERIENCE, IN COOPERATION AND COORDINATION WITH THE WORK OF ALL OTHER TRADES. IT IS NOT INTENDED TO SHOW EVERY ITEM OF WORK OR MINOR PIECE OF EQUIPMENT, BUT THE CONTRACTOR SHALL FURNISH AND INSTALL WITHOUT ADDITIONAL REMUNERATION ANY COMPONENT NECESSARY TO COMPLETE THE SYSTEM IN ACCORDANCE WITH THE BEST PRACTICE OF THE TRADE.
3. ITEMS OF WORK OR EQUIPMENT SHOWN ON THE DRAWINGS ONLY, OR CALLED FOR IN THE SPECIFICATIONS ONLY, SHALL BE FURNISHED AND INSTALLED IN THE SAME MANNER AS IF THEY APPEARED ON BOTH THE DRAWINGS AND SPECIFICATIONS.
4. DRAWINGS DO NOT INDICATE ALL OFFSETS, CHANGES IN ELEVATIONS, ETC. WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL MAKE SUCH CHANGES IN PIPING AND LOCATION OF EQUIPMENT, ETC. TO ACCOMMODATE WORK WITH THAT OF OTHER CONTRACTORS.
5. INSTALL EQUIPMENT AND PIPING TO AVOID INTERFERENCE WITH THE OPERATION OR SERVING AND MAINTENANCE OF EQUIPMENT.
6. PIPES PENETRATING FIRE WALLS AND FLOORS SHALL BE FIRESTOPPED AS SPECIFIED REITER FOR THE ARCHITECTURAL DRAWINGS FOR FIRE WALL AND FLOOR LOCATIONS.
7. ALL PHYSICAL ATTRIBUTES OF EQUIPMENT AND DEVICES ARE BASED ON THOSE MANUFACTURERS LISTED IN THE SPECIFICATIONS AND/OR THE EQUIPMENT SCHEDULES. THE RESPECTIVE CONTRACTORS ARE RESPONSIBLE FOR ALL CHANGES BROUGHT ABOUT BY USE OF ITEMS BY OTHER MANUFACTURERS. THE ARCHITECT/ENGINEER HAS RESERVED THE RIGHT TO REJECT ITEMS BY OTHER MANUFACTURERS IF THOSE ITEMS DO NOT MATCH THE PHYSICAL ATTRIBUTES OF THE MANUFACTURERS LISTED.
8. COMPLY WITH THE VIRGINIA IPC 2009 PLUMBING CODE, VIRGINIA BUILDING CODES, VIRGINIA STATE ENERGY CONSERVATION CONSTRUCTION CODE, AND OTHER APPLICABLE CODES.



- CONSTRUCTION NOTES:**
1. PROVIDE 1/2" RIGID METAL CONDUIT FROM LIFT CONTROLLER TO LIFT TO ACCOMMODATE LOW VOLTAGE WIRING. INSTALL PER MANUFACTURERS WRITTEN RECOMMENDATIONS.
 2. PROVIDE 4" PVC CONDUIT CHASE FROM LIFT CONTROLLER TO LIFT. INSTALL PER MANUFACTURERS WRITTEN RECOMMENDATIONS.
 3. PROVIDE COMPRESSED AIR PIPING INSTALLED DOWN COLUMN OR WALL. PROVIDE TRANSITION FROM COPPER PIPE TO 1/2" COMPRESSED AIR TUBING APPROXIMATELY 12" ABOVE FINISHED FLOOR. PROVIDE LOCKABLE SHUT-OFF VALVE AND FILTER/REGULATOR/LUBRICATOR IN RISER PRIOR TO TRANSITION. LABEL VALVE AS BUS LIFT SHUT-OFF. PROVIDE 1/2" RIGID METAL CONDUIT INSTALLED IN THE FLOOR SLAB FROM COLUMN TO THE ASSOCIATED LIFT CONTROLLER. INSTALL 3/4" RUBBER FLEXIBLE TUBING IN RIGID CONDUIT AND EXTEND TO LIFT CONTROLLER.

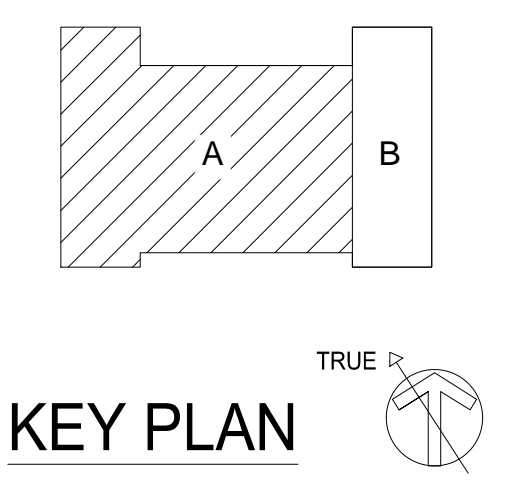


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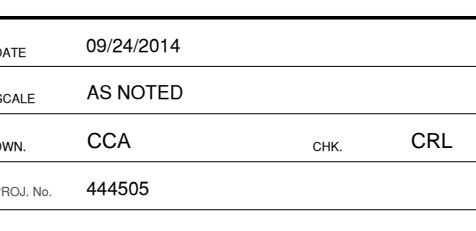
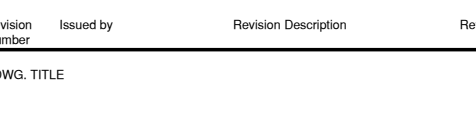
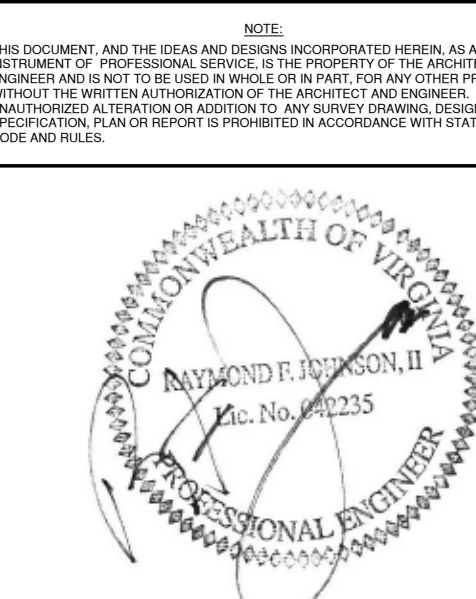
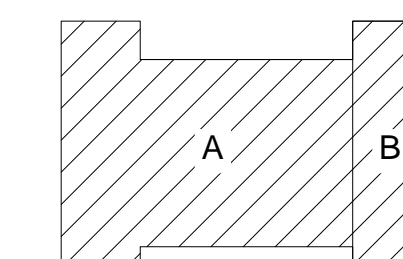
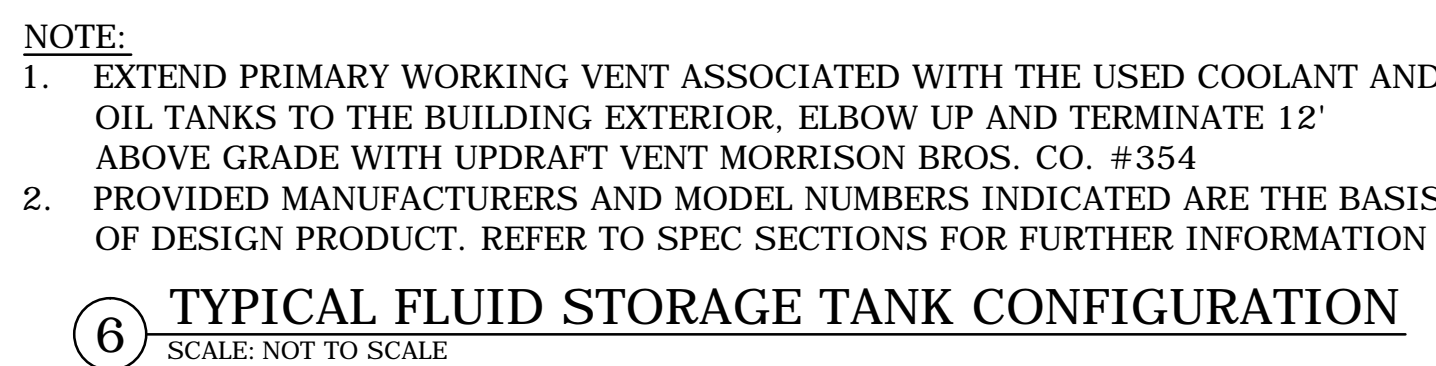
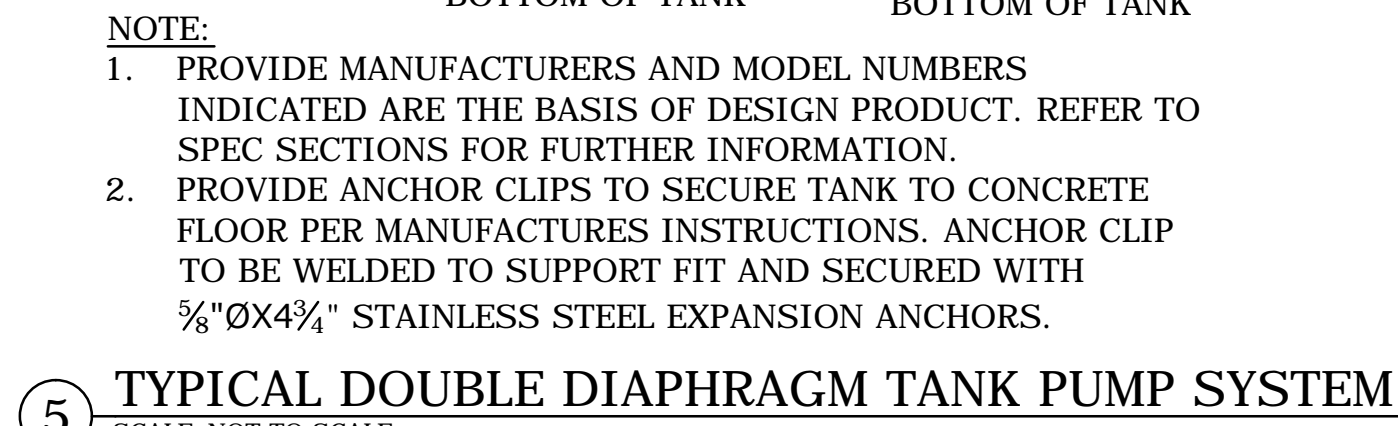
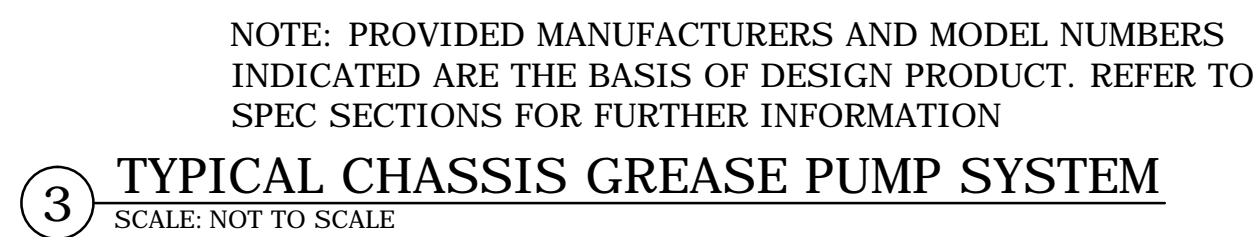
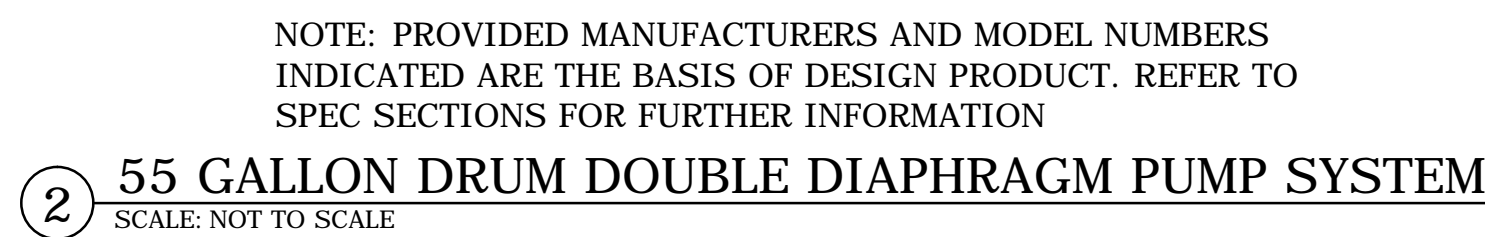
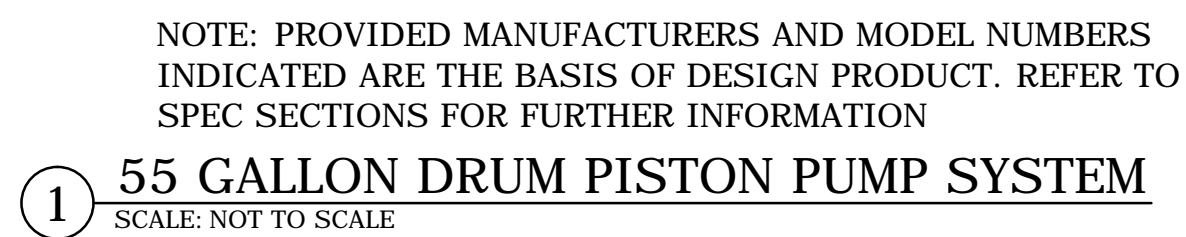
Revision Number	Issued By	Revision Description	Revision Date
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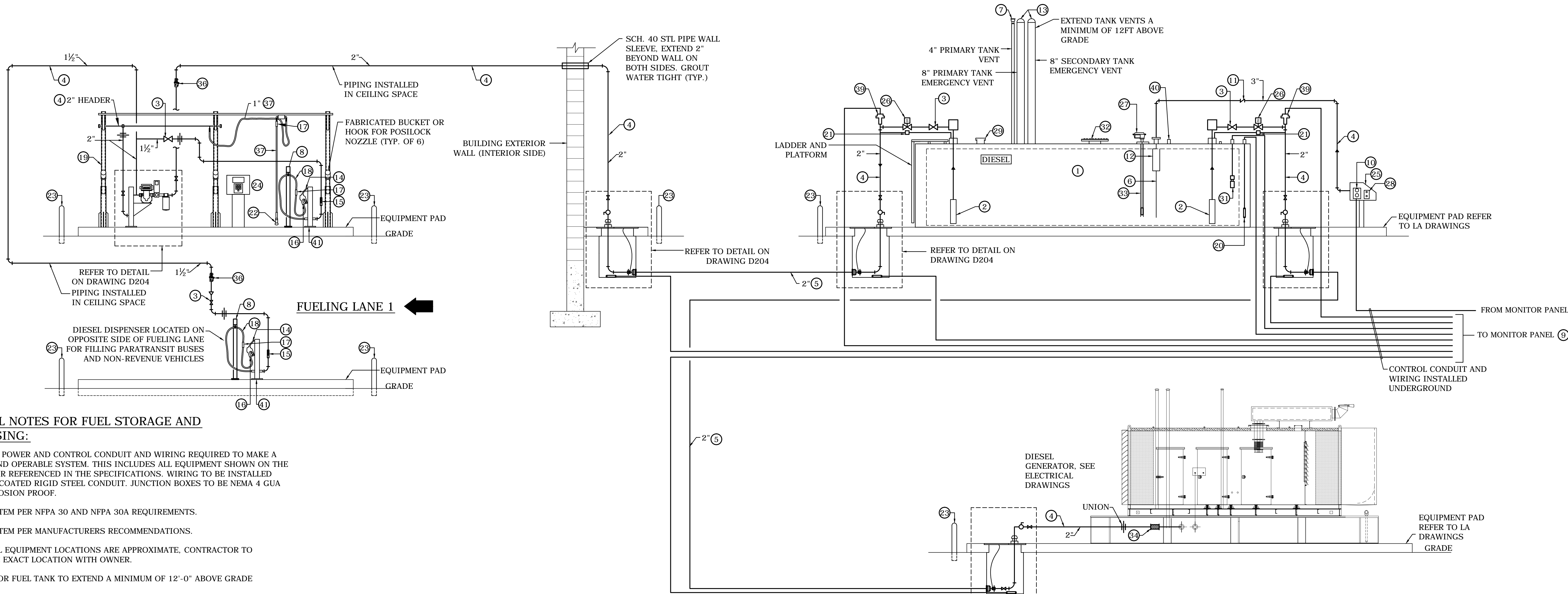
**PARTIAL FIRST FLOOR
PROCESS PLAN-
UNDERGROUND PIPING-
AREA A**

DATE	09/24/2014		
SCALE	AS NOTED		
DRAWN	CCA	CHECK	CRL
PROJECT No.	444505		
DRAWING No.	D102		

D102

1 PARTIAL FIRST FLOOR PROCESS PLAN-UNDERGROUND PIPING- AREA A
SCALE: 1/8" = 1'-0"





1 DIESEL DISPENSING SCHEMATIC
SCALE: NONE

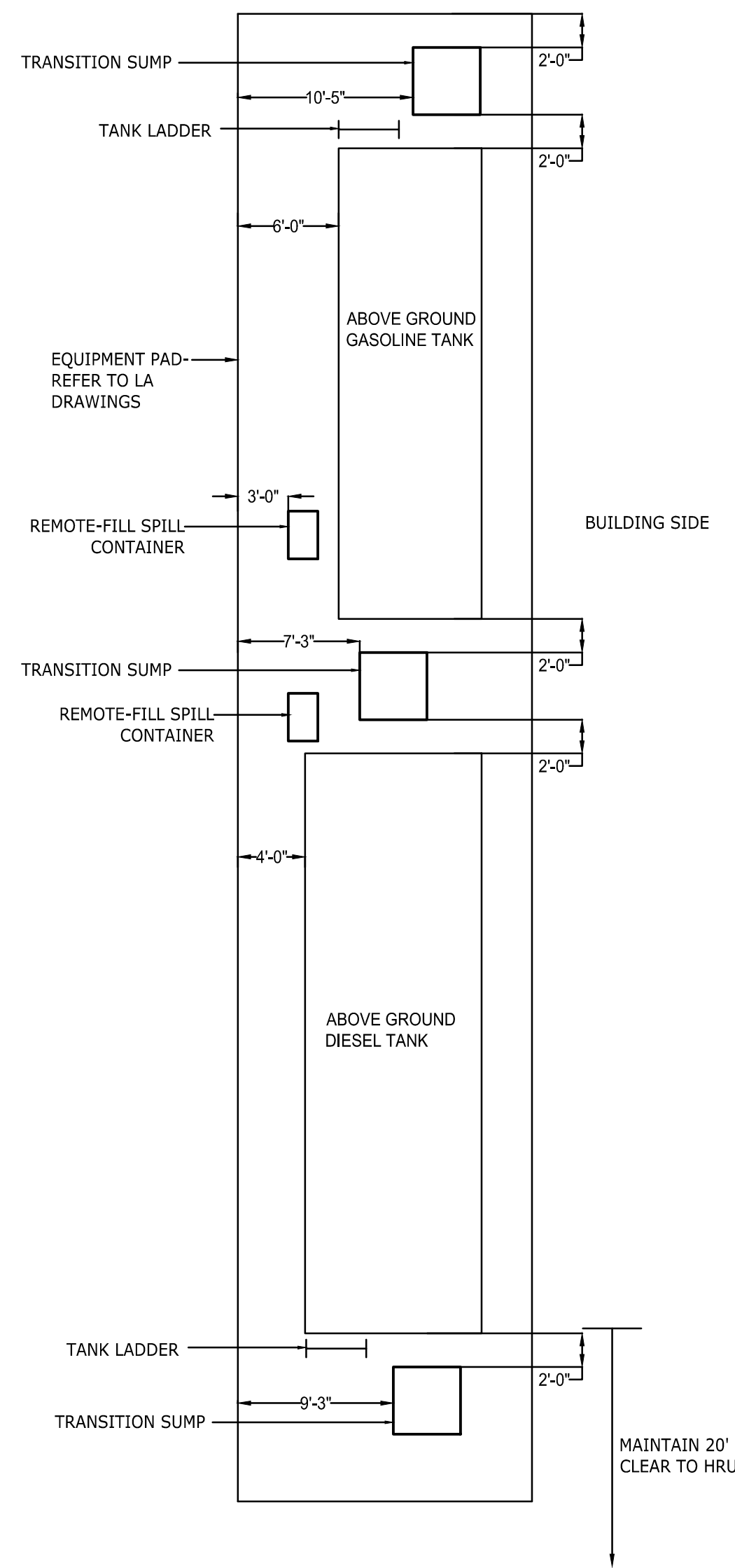
GENERAL NOTES FOR FUEL STORAGE AND DISPENSING:

1. PROVIDE ALL POWER AND CONTROL CONDUIT AND WIRING REQUIRED TO MAKE A COMPLETE AND OPERABLE SYSTEM. THIS INCLUDES ALL EQUIPMENT SHOWN ON THE DRAWINGS OR REFERENCED IN THE SPECIFICATIONS. WIRING TO BE INSTALLED WITHIN PVC COATED RIGID STEEL CONDUIT. JUNCTION BOXES TO BE NEMA 4 GUA SERIES EXPLOSION PROOF.
2. INSTALL SYSTEM PER NFPA 30 AND NFPA 30A REQUIREMENTS.
3. INSTALL SYSTEM PER MANUFACTURERS RECOMMENDATIONS.
4. ALL CONTROL EQUIPMENT LOCATIONS ARE APPROXIMATE, CONTRACTOR TO COORDINATE EXACT LOCATION WITH OWNER.
5. ALL VENTS FOR FUEL TANK TO EXTEND A MINIMUM OF 12'-0" ABOVE GRADE
6. PROVIDED MANUFACTURERS AND MODEL NUMBERS INDICATED ARE THE BASIS OF DESIGN PRODUCT. REFER TO SPEC SECTIONS FOR FURTHER INFORMATION.
7. PROVIDE FLEXIBLE ENTRY BOOTS FOR ALL SUMP PENETRATIONS, INCLUDING PIPING AND CONDUIT.
8. INSTALL TO VIRGINIA CODES AND NFPA REQUIREMENTS.
9. PROVIDE GROUND FROM EACH TANK.
10. FILL PIPES SHALL TERMINATE WITHIN 6 INCHES OF THE BOTTOM OF THE TANK.
11. REFER TO LANDSCAPE DRAWINGS FOR TANK LOCATIONS AND PIPE ROUTING EXTERIOR TO THE BUILDING.

COMPONENT IDENTIFICATION NUMBERS:

1. 20,000 GALLON STEEL PROTECTED ABOVEGROUND STORAGE TANK 10'-6"x34'-6" LONG, MODERN WELDING FIREGAURD INSULATED TANK WITH INTEGRAL SECONDARY CONTAINMENT FOR 110% OF TOTAL CAPACITY. LISTED IN ACCORDANCE WITH ANSI/UL 2085. PROVIDE SADDLES, LADDER, AND PLATFORM.
2. SUBMERSIBLE PUMP (1-1/2 HP TO DIESEL FUEL DISPENSER AND 3/4 HP TO THE GENERATOR) WITH CHECK VALVE, PRESSURE RELIEF VALVE, SIPHON, AIR ELIMINATOR, AND ELECTRICAL DISCONNECT. FE PETRO # PMA-150. VERIFY LENGTH REQUIRED PRIOR TO ORDERING. PROVIDE SUBMERSIBLE PUMP DISPENSER HOOK ISOLATION BOX (NOT SHOWN ON DRAWINGS) FE PETRO # STP-DHI AND PUMP SMART CONTROLLER STP-SC1 TO ACCOMMODATE 120V SIGNAL FROM DISPENSERS AND 240 V TO SUBMERSIBLE PUMP. DHI BOX TO ACCEPT UP TO 8 INPUTS. INSTALL CONTROL BOX IN MECHANICAL ROOM M134. CONNECT TO DISPENSER CONTROLS. SOLENOID VALVE TO BE ENERGIZED AND PUMP ACTIVATED UPON DISPENSER ACTIVATION.
3. FULL PORT TWO-WAY BALL VALVE, OPW # 21BV.
4. SCHEDULE 40 SEAMLESS STEEL PIPE WITH FACTORY APPLIED CORROSION RESISTIVE COATING. ALL JOINTS AND FITTINGS WITHIN BUILDING TO BE WELDED EXCEPT AT VALVES AND SPECIALTIES REQUIRING THREADED JOINTS.
5. SECONDARILY CONTAINED PRESSURE PIPING, OPW FLEXWORKS C15. CONTINUOUS PIPE INSTALLATION, NO COUPLINGS OR UNIONS UNDERGROUND EXTERIOR TO SUMPS. PROVIDE 4" DIAMETER CORRUGATED FLEXIBLE CONDUIT, OPW AXP40, STRONG ENOUGH TO WITHSTAND H2O LOADING WHEN PROPERLY BURIED. INSTALL SECONDARY CONTAINMENT PRESSURE PIPING WITHIN 4" DIAMETER CORRUGATED FLEXIBLE CONDUIT IN ALL DIRECT BURY LOCATIONS.
6. DROP TUBE, OPW # 61FT.
7. ATMOPHERIC VENT, OPW # 23 SERIES.
8. POST MOUNTED HOSE RETRACTOR OPW POMECA #6102-1078 AND HOSE CLAMP.
9. INVENTORY CONTROL AND LEAK DETECTION MONITOR PANEL. VEEDER ROOT # TLS-450. PROVIDE WITH TOUCH SCREEN, BUILT-IN WEB INTERFACE AND ETHERNET/IP CARD, AND MANUAL READOUT WITH PRINTER. LOCATE PANEL IN PARTS ROOM M123.
10. SINGLE OVERFILL TANK ALARM MOUNT 40" ABOVE FINISHED GRADE, VEEDER ROOT # 790091-001.
11. SWING CHECK VALVE, OPW # 175.
12. OVERFILL PREVENTION VALVE, OPW # 61FSTOP.
13. EMERGENCY VENT, OPW # 201.
14. 3/4" PRESSURE ACTIVATED AUTOMATIC SHUT-OFF NOZZLES FOR DIESEL APPLICATIONS. OPW # 11B. COLOR TO BE SELECTED BY OWNER. PROVIDE WITH 3/4" TO 1" BUSHING.
15. FLOW LIMITER OPW # 44-0044.
16. 3/4" HOSE SWIVEL, OPW #241TPS.
17. 3/4" RECONNECTABLE BREAKAWAY UPSTREAM OF HOSE RETRACTOR, OPW # 66RB.
18. 3/4" HOSE ASSEMBLY INCLUDING CURB AND WHIP HOSE, PARKER # 7124 SUPER FLEX. HOSE LENGTHS TO COMPLY WITH NFPA 30A REQUIREMENTS AND ALL LOCAL CODES.
19. TRAMWAY BUS REFUELING SYSTEM FLEET FUELING SYSTEMS INC. MODEL FF-2000-TS.
20. INTERSTITIAL SENSOR (SINGLE FLOAT) FOR DOUBLE WALL STEEL TANKS, VEEDOR ROOT # 794390-420. PROVIDE REQUIRED INSTALLATION AND ADAPTOR KIT.
21. THERMAL PRESSURE RELIEF VALVE, OPW # 82RV .
22. POSILOCK NOZZLE EMCO WHEATON # G2266-105.
23. CONCRETE BOLLARD. REFER TO ARCHITECTURAL AND SITE DRAWINGS FOR SIZE, LOCATION, AND QUANTITY.
24. FUEL MANAGEMENT SYSTEM CONTROLLER- FLEETWATCH REMOTE ISLAND HEAD MODEL 3000R:
 - 24.1. PROVIDE ALL REQUIRED UNDERGROUND AND ABOVEGROUND COMMUNICATION WIRING AND CONDUIT TO MAKE A COMPLETE AND OPERABLE SYSTEM. CONNECT SYSTEM TO NETWORK SERVER TO ACCOMMODATE REMOTE NETWORK ACCESS BY A USER COMPUTER.
25. REMOTE-FILL SPILL CONTAINER, OPW # 211R-302. PROVIDE 3" FILL WITH FILL ADAPTOR OPW # 1612AN-0300, VAPOR RECOVERY ADAPTOR OPW # 1611AV, AND LOCKABLE DUST CAPS. VERIFY WITH FUEL SUPPLIER THAT ADAPTORS WILL COMPLY WITH SUPPLIERS EQUIPMENT.
26. SOLENOID VALVE, OPW # 821.
27. MECHANICAL TANK GAUGE, OPW # 200TG-ENG.
28. ALARM ACKNOWLEDGEMENT SWITCH, VEEDOR ROOT # 790095-001 .
29. CAP SPARE CONNECTIONS.
30. EMERGENCY SHUT-OFF SWITCH TO DISABLE FUELING SYSTEM. REFER TO ELECTRICAL DRAWINGS FOR LOCATION (NOT SHOWN).
31. MAGNETOSTRICTIVE INVENTORY ONLY MEASUREMENT PROBE, VEEDER ROOT # 846391-3xx WITH # 846400 FLOATS. PROVIDE REQUIRED INSTALLATION KIT INCLUDING ALL CABLES, RISER CAPS, FLOAT KIT, ETC. CONTRACTOR TO VERIFY PROBE LENGTH AND REQUIRED FLOAT KIT PRIOR TO ORDERING.
32. MANWAY COVER
33. DROP TUBE, OPW # 61T
34. STAINLESS STEEL FLEXIBLE CONNECTOR
35. NOT USED.
36. EMERGENCY SHEAR VALVE OPW 10 SERIES. SECURE TO STRUCTURAL FRAMING, PROVIDE DELEGATED DESIGN SUBMITTAL TO ACCOMMODATE VALVE SUPPORT SHEAR FORCE OF 650 LBS. REFER TO MISCELLANEOUS METAL SPECIFICATION FOR FURTHER DETAIL.
37. 1" HOSE ASSEMBLY INCLUDING CURB AND WHIP HOSE, PARKER # 7124 SUPER FLEX. HOSE LENGTHS TO COMPLY WITH NFPA 30A REQUIREMENTS AND ALL LOCAL CODES.
38. NOT USED.
39. MECHANICAL LINE LEAK DETECTOR, RED JACKET #FXV.
40. CAP SPARE CONNECTIONS.
41. HIGH CAPACITY HOSE STAND WITH 1 1/2" CONNECTION, INTEGRAL BOOT, SOLENOID VALVE, AND DPDT SWITCH, PMC #OHS-60BV. ANCHOR TO CONCRETE USING A MINIMUM OF FOUR 4" X 1/2" CONCRETE ADHESIVE ANCHORS WITH 3" EMBEDMENT.

3 DISPENSING EQUIPMENT LIST
SCALE: NONE



4 FUELING EQUIPMENT PAD LAYOUT
SCALE: NONE

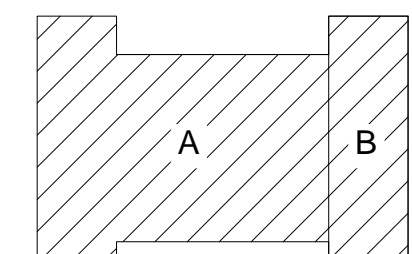


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Revision Number Revision Description Revision Date
CML TITLE

PROCESS DETAILS

DATE 09/24/2014
SCALE AS NOTED
OWN CCA CML CRL
PROJECT No. 444505
CML No.

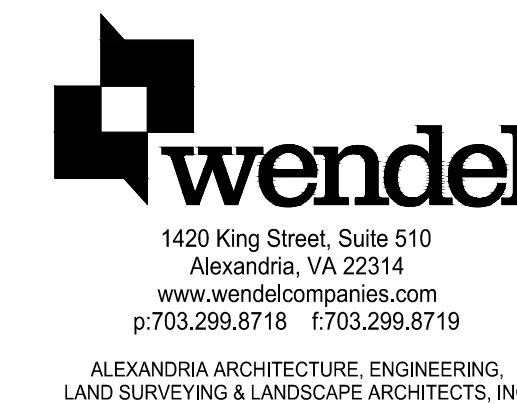
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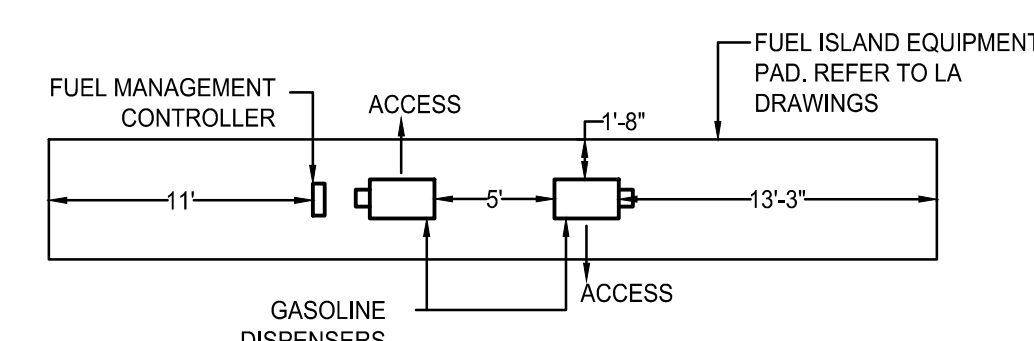
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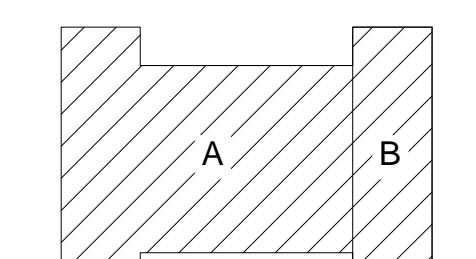


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|--|---|--|
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24.1. PROVIDE ALL REQUIRED UNDERGROUND AND ABOVEGROUND COMMUNICATION WIRING AND CONDUIT TO MAKE A COMPLETE AND OPERABLE SYSTEM. CONNECT SYSTEM TO NETWORK SERVER TO ACCOMMODATE REMOTE NETWORK ACCESS BY A USER COMPUTER. |
| 2. 1-1/2 HP SUBMERSIBLE PUMP WITH CHECK VALVE, PRESSURE RELIEF VALVE, SIPHON, AIR ELIMINATOR, AND ELECTRICAL DISCONNECT, FE PETRO # PMA-33. VERIFY LENGTH REQUIRED PRIOR TO ORDERING. PROVIDE SUBMERSIBLE PUMP DISPENSER HOOK ISOLATION BOX (NOT SHOWN ON DRAWINGS) FE PETRO # STP-DHI AND PUMP SMART CONTROLLER STP-SC1 TO ACCOMMODATE 120V SIGNAL FROM DISPENSERS AND 240 V TO SUBMERSIBLE PUMP. DHI BOX TO ACCEPT UP TO 8 INPUTS. INSTALL CONTROL BOX IN PARTS ROOM M123. CONNECT TO DISPENSER CONTROLS. SOLENOID VALVE TO BE ENERGIZED AND PUMP ACTIVATED UPON DISPENSER ACTIVATION. | 10. SINGLE OVERFILL TANK ALARM MOUNT 40" ABOVE FINISHED GRADE, VEEDOR ROOT # 790091-001. | 25. REMOTE-FILL SPILL CONTAINER. OPW # 211R-302. PROVIDE 3" FILL WITH FILL ADAPTOR OPW # 1612AN-0300, VAPOR RECOVERY ADAPTOR OPW # 1611AV, AND LOCKABLE DUST CAPS. VERIFY WITH FUEL SUPPLIER THAT ADAPTORS WILL COMPLY WITH SUPPLIERS EQUIPMENT. |
| 3. FULL PORT TWO-WAY BALL VALVE, OPW # 21BV. | 11. SWING CHECK VALVE, OPW # 175. | 26. SOLENOID VALVE, OPW # 821. |
| 4. SCHEDULE 40 SEAMLESS STEEL PIPE WITH FACTORY APPLIED CORROSION RESISTIVE COATING. ALL JOINTS AND FITTINGS TO BE WELDED EXCEPT AT VALVES AND SPECIALTIES REQUIRING THREADED JOINTS. | 12. OVERFILL PREVENTION VALVE, OPW # 61FSTOP. | 27. MECHANICAL TANK GAUGE, OPW # 200TG-ENG. |
| 5. SECONDARILY CONTAINED PRESSURE PIPING, OPW FLEXWORKS C20. CONTINUOUS PIPE INSTALLATION, NO COUPLINGS OR UNIONS UNDERGROUND EXTERIOR TO SUMPS. PROVIDE 4" DIAMETER CORRUGATED FLEXIBLE CONDUIT, OPW AX140, STRONG ENOUGH TO WITHSTAND H2O LOADING WHEN PROPERLY BURIED. INSTALL SECONDARY CONTAINMENT PRESSURE PIPING WITHIN 4" DIAMETER CORRUGATED FLEXIBLE CONDUIT IN ALL DIRECT BURY LOCATIONS. | 13. EMERGENCY VENT, OPW # 201. | 28. ALARM ACKNOWLEDGEMENT SWITCH, VEEDOR ROOT # 790095-001 . |
| 6. DROP TUBE, OPW # 61FT. | 14. NOT USED. | 29. NOT USED. |
| 7. ATMOSPHERIC VENT, OPW # 23 SERIES. | 15. NOT USED. | 30. EMERGENCY SHUT-OFF SWITCH TO DISABLE FUELING SYSTEM, REFER TO ELECTRICAL DRAWINGS FOR LOCATION (NOT SHOWN). |
| 8. NOT USED. | 16. NOT USED. | 31. MAGNETOSTRICTIVE INVENTORY ONLY MEASUREMENT PROBE, VEEDOR ROOT #86391-3xx WITH #84640 FLOATS. PROVIDE REQUIRED INSTALLATION KIT INCLUDING ALL CABLES, RISER CAPS, FLOAT KIT, ETC.CONTRACTOR TO VERIFY PROBE LENGTH AND REQUIRED FLOAT KIT PRIOR TO ORDERING. |
| | 17. NOT USED. | 32. MANWAY COVER |
| | 18. NOT USED. | 33. DROP TUBE, OPW # 61T |
| | 19. NOT USED. | 34. NOT USED |
| | 20. INTERSTITIAL SENSOR (SINGLE FLOAT) FOR DOUBLE WALL STEEL TANKS, VEEDOR ROOT # 794390-420. PROVIDE REQUIRED INSTALLATION AND ADAPTOR KIT. | 35. PROVIDE FM APPROVED DRY CHEMICAL FIRE EXTINGUISHING SYSTEM. |
| | 21. THERMAL PRESSURE RELIEF VALVE, OPW # 82RV . | |
| | 22. NOT USED. | |
| | 23. CONCRETE BOLLARD. REFER TO ARCHITECTURAL AND SITE DRAWINGS FOR SIZE, LOCATION, AND QUANTITY. | |

PYRO-CHEM ATTENDANT II. SYSTEM TO INCLUDE REQUIRED CONTROL HEAD, PNEUMATIC ACTUATING CYLINDER, CHEMICAL AGENT STORAGE CYLINDERS, DISCHARGE NOZZLES, AUDIBLE ALARM, AND REMOTE MECHANICAL PULL STATION. PROVIDE REQUIRED CONTROL WIRING AND CONDUIT, PNEUMATIC ACTUATION LINE, AND AGENT DISTRIBUTION PIPING. CONTROL HEAD, PNEUMATIC ACTUATING CYLINDER, AND MECHANICAL PULL STATION TO BE LOCATED ADJACENT TO EMERGENCY SHUT-OFF. STORAGE CYLINDER CAPACITY, QUANTITY AND LOCATION OF DISCHARGE NOZZLES, AND PIPE SIZING TO BE DETERMINED BY MANUFACTURER ENGINEER. PROVIDE DELEGATED DESIGN ENGINEERING SERVICES. PROVIDE CALCULATIONS REPORT TO ENGINEER FOR REVIEW AND APPROVAL. PROVIDE SYSTEM TO BE INSTALLED AND TESTED BY A CERTIFIED CONTRACTOR. PROVIDE INTERCONNECTION WITH DISPENSER. IN THE EVENT OF AN ALARM THE DISPENSER PUMPS ARE TO BE DISABLED. PROVIDE SUPERVISION OF THE DETECTION/INITIATION CIRCUIT. TIE INTO BUILDING FIRE ALARM. ALARM TO BE GENERATED UPON SYSTEM ACTIVATION.



3 FUEL ISLAND EQUIPMENT LAYOUT



KEY PLAN

GENERAL NOTES FOR FUEL STORAGE AND DISPENSING:

1. PROVIDE ALL POWER AND CONTROL CONDUIT AND WIRING REQUIRED TO MAKE A COMPLETE AND OPERABLE SYSTEM. THIS INCLUDES ALL EQUIPMENT SHOWN ON THE DRAWINGS OR REFERENCED IN THE SPECIFICATIONS. WIRING TO BE INSTALLED WITHIN PVC COATED RIGID STEEL CONDUIT. JUNCTION BOXES TO BE NEMA 4 GUA SERIES EXPLOSION PROOF.
2. INSTALL SYSTEM PER NFPA 30 AND NFPA 30A REQUIREMENTS.
3. INSTALL SYSTEM PER MANUFACTURERS RECOMMENDATIONS.
4. ALL CONTROL EQUIPMENT LOCATIONS ARE APPROXIMATE. CONTRACTOR TO COORDINATE EXACT LOCATION WITH OWNER.
5. ALL VENTS FOR FUEL TANK TO EXTEND A MINIMUM OF 12'-0" ABOVE GRADE
6. PROVIDED MANUFACTURERS AND MODEL NUMBERS INDICATED ARE THE BASIS OF DESIGN PRODUCT. REFER TO SPEC SECTIONS FOR FURTHER INFORMATION.
7. PROVIDE FLEXIBLE ENTRY BOOTS FOR ALL SUMP PENETRATIONS, INCLUDING PIPING AND CONDUIT.
8. INSTALL TO VIRGINIA CODES AND NFPA REQUIREMENTS.
9. PROVIDE GROUND FROM EACH TANK.
10. FILL PIPES SHALL TERMINATE WITHIN 6 INCHES OF THE BOTTOM OF THE TANK.
11. REFER TO LANDSCAPE DRAWINGS FOR TANK LOCATIONS AND PIPE ROUTING EXTERIOR TO THE BUILDING.

(2) GASOLINE DISPENSING EQUIPMENT LIST

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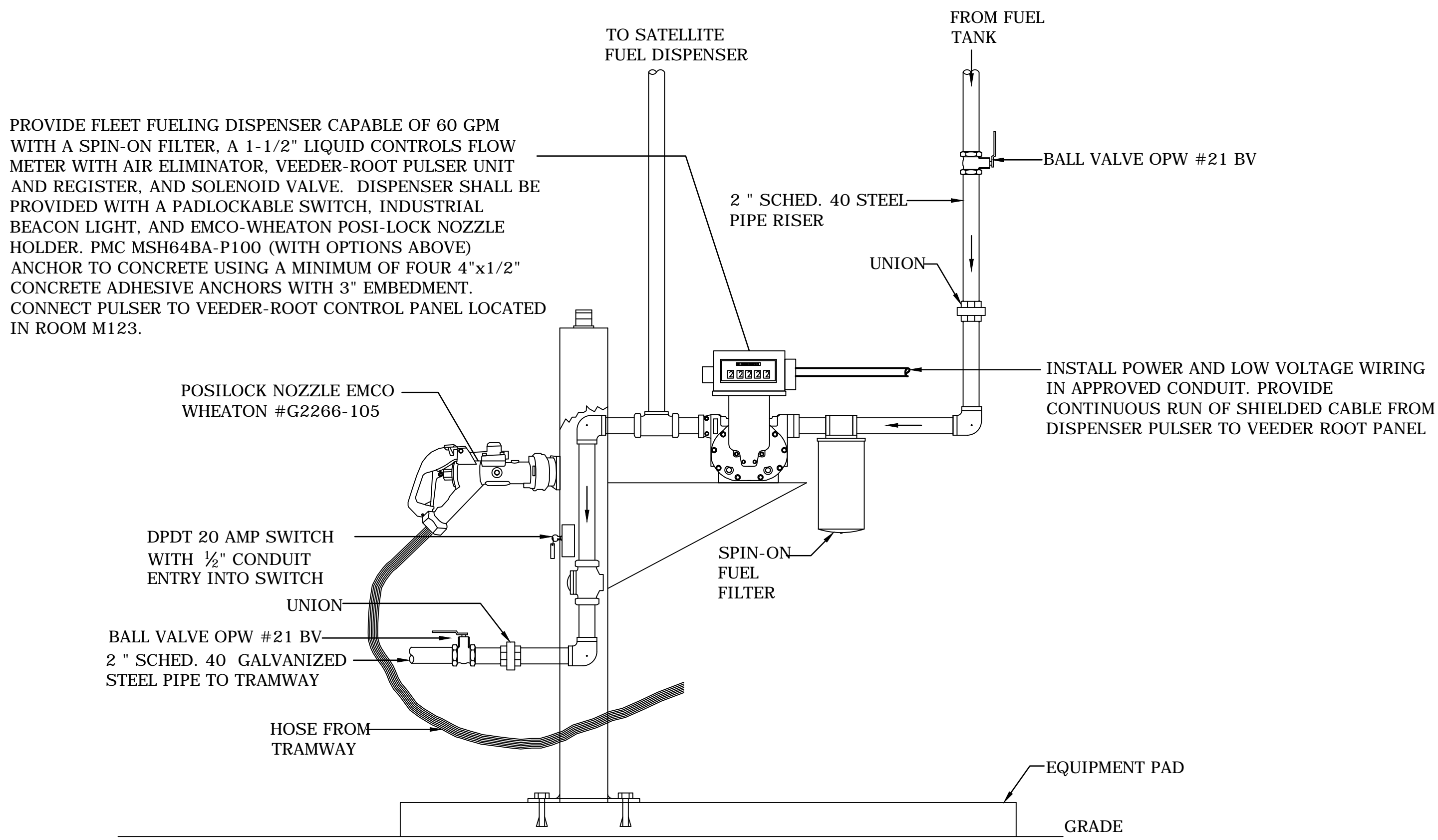


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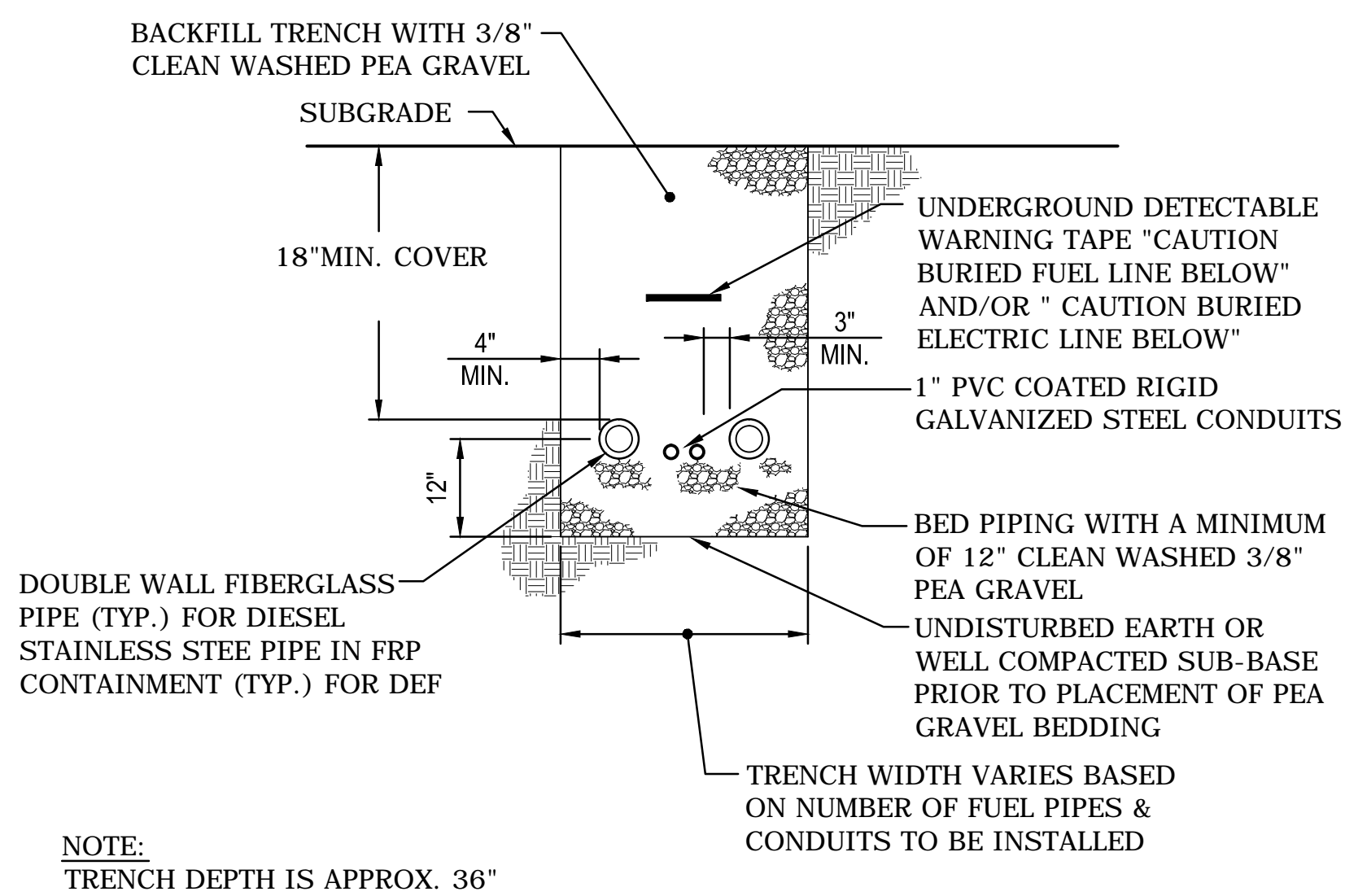
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OWN	CCA	CHK.	CRL
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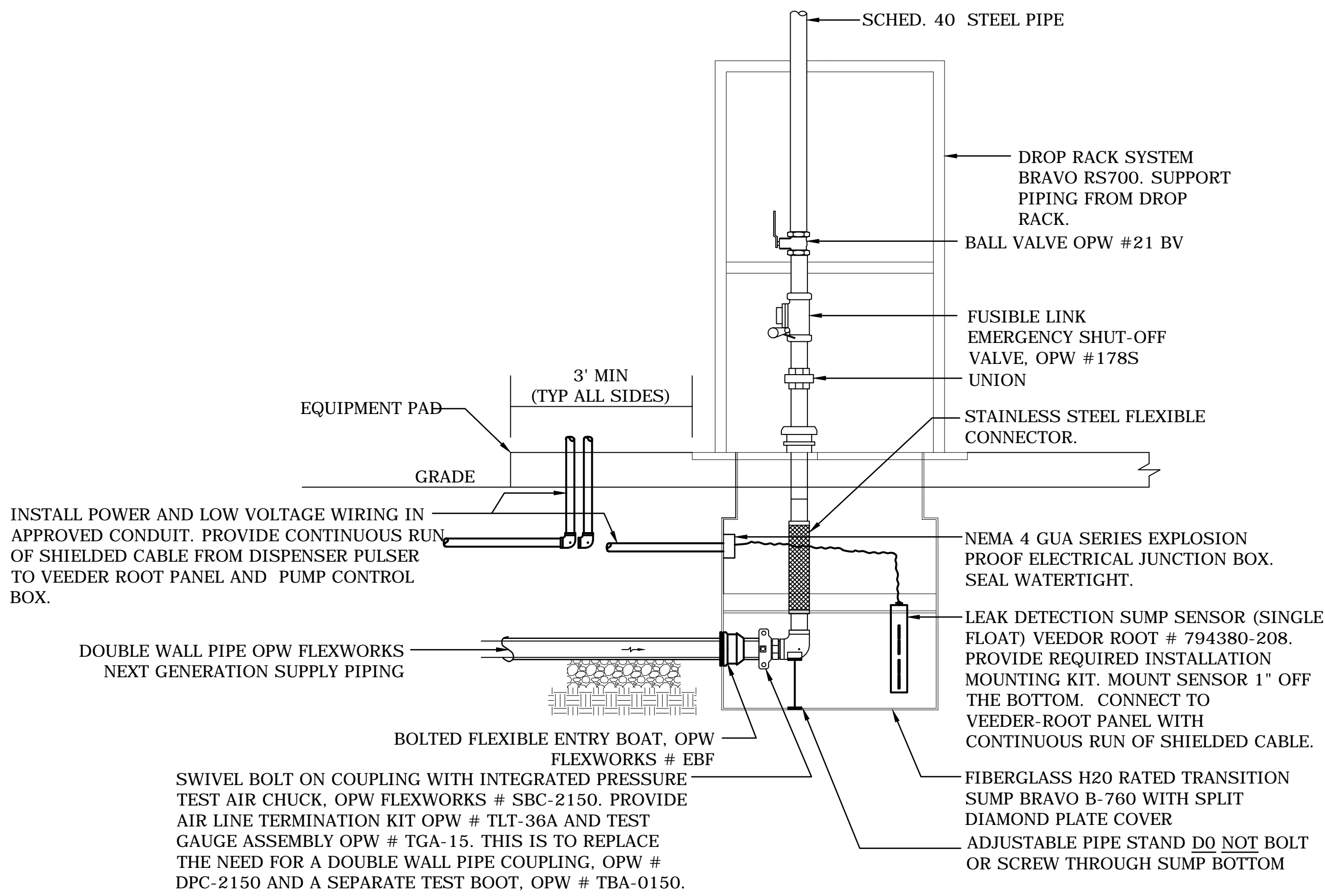
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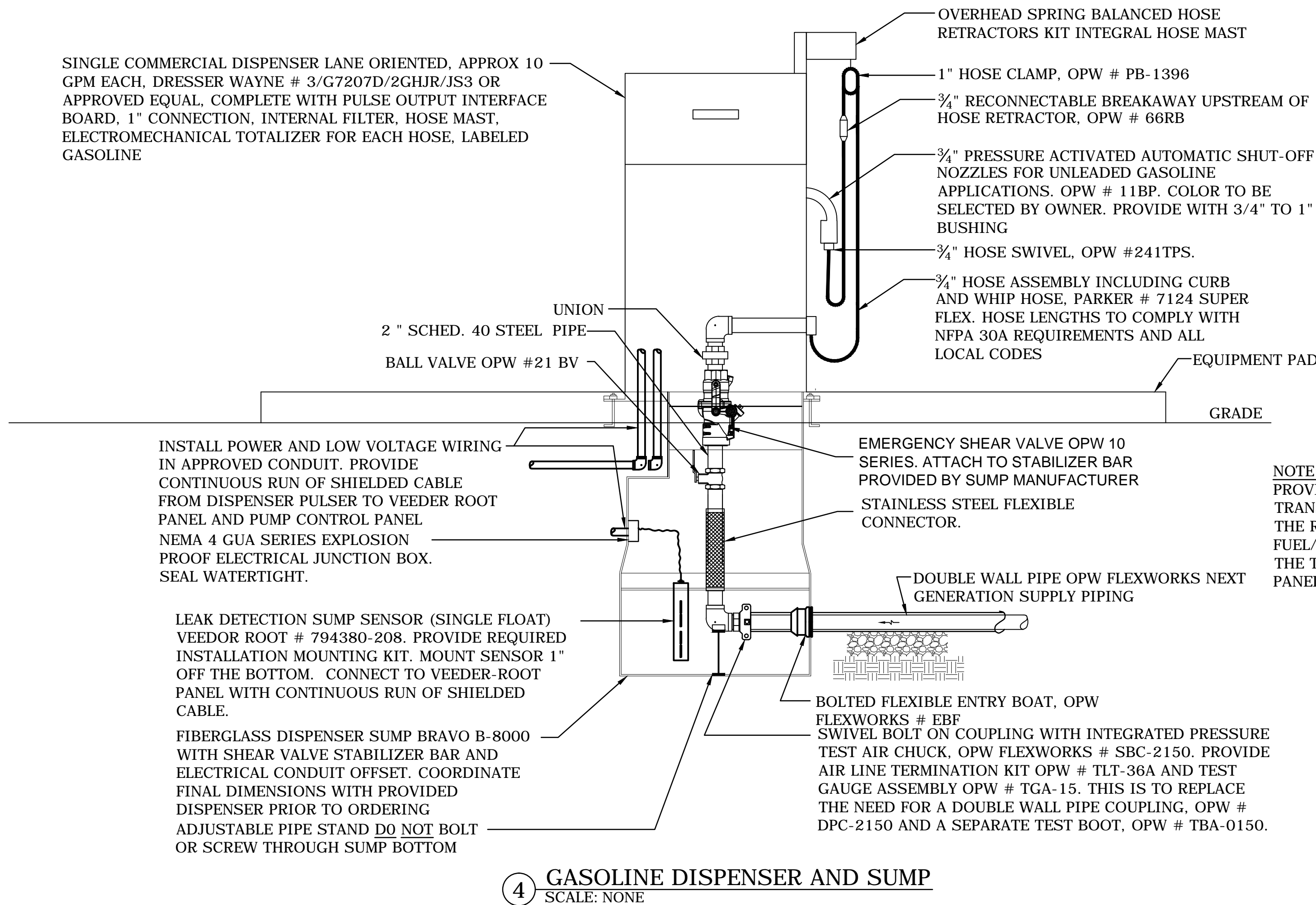
① DIESEL FUEL DISPENSER AND SUMP
SCALE: NONE



② FUEL PIPING TRENCH
SCALE: NONE



③ FUEL PIPING TRANSITION SUMP
SCALE: NONE



④ GASOLINE DISPENSER AND SUMP
SCALE: NONE



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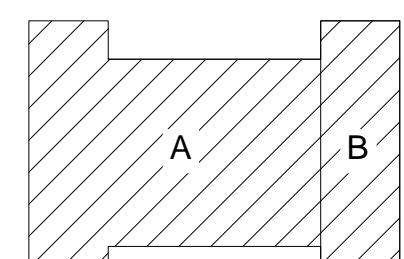
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KEY PLAN

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D204

COMPRESSOR (VSD) SCHEDULE (C)														
ID #	MANUFACTURER MODEL No.	LOCATION	SERVICE	TYPE	MIN/MAX FAD (SCFM)	MAX PRESSURE (PSI)	CALCULATED WORKING FAD (SCFM)	SYSTEM WORKING PRESSURE (PSI)	DIMENSION LXWXH (IN)	WEIGHT (LBS)	NOISE LEVEL (dB)	ELECTRICAL DATA		NOTES
												HP	KW/ VOLTS/ PHASE	
C-1 A	ATLAS COPCO GA 22VSDFF	COMPRESSOR ROOM	MAINTENANCE	ROTARY SCREW	38/130	145	165	130	50X34X58	1,235	68	30	22/460/3	1,2,3,4,5,6,7
C-1 B	ATLAS COPCO GA 22VSDFF	COMPRESSOR ROOM	MAINTENANCE	ROTARY SCREW	38/130	145	165	130	50X34X58	1,235	68	30	22/460/3	1,2,3,4,5,6,7
NOTES: 1. PROVIDE FULL FEATURED UNIT WITH INTEGRATED REFRIGERANT AIR DRYER 2. COMPRESSOR PACKAGE TO INCLUDE COMPRESSOR, DRIVE MOTOR AND STARTER, OIL SYSTEM, REGULATION SYSTEM, AND CONTROL MODULE. 3. PROVIDE PACKAGE IN SOUND ATTENUATING ENCLOSURE 4. PROVIDE INTERNAL COOLING AIR CIRCUIT 5. PROVIDE ONE VERTICAL 400 GALLON AIR RECEIVER WITH GAUGE, RELIEF VALVE AND AUTOMATIC CONDENSATE DRAIN FEED FROM DUPLEX SYSTEM COMPRESSORS C-1A AND C-1B. 6. EACH COMPRESSOR SIZED BASED ON 75% OF CALCULATED DESIGN AIR FLOW TO ACCOMMODATE REDUNDANCY. 7. PROVIDE INTERNAL AIR FILTERS.														

FLUID PUMP SCHEDULE (FP)															
ID #	MANUFACTURER MODEL No.	LOCATION	FLUID TYPE	TYPE	STYLE	PUMP RATIO	COMPRESSED AIR				FLUID				NOTES
							FLOW (SCFM)	OUTLET PRESSURE (PSI)	MAX WORKING PRESSURE (PSI)	CONNECT. SIZE (IN)	FLOW (GPM)	SYSTEM PRESSURE DROP (PSI)	INLET SIZE (IN)	OUTLET SIZE (IN)	
FP-1	GRACO FIREBALL 425 205626	LUBE RM M119	GEAR OIL	PNEUMATIC	PISTON	10:1	15	75	180	1/2	2	660	1-1/2	3/4	1,2,3,4,6,9,14
FP-2	GRACO FIREBALL 425 205626	LUBE RM M119	ENGINE OIL- BUS	PNEUMATIC	PISTON	10:1	18	45	180	1/2	3	420	1-1/2	3/4	1,2,3,4,7,9,14
FP-3	GRACO FIREBALL 425 205626	LUBE RM M119	ENGINE OIL- PARA	PNEUMATIC	PISTON	6:1	10	30	180	1/2	2	254	1-1/2	3/4	1,2,3,4,7,9,14
FP-4	GRACO FIREBALL 425 238108	LUBE RM M119	AUTOMATIC TRANSMISSION- BUS	PNEUMATIC	PISTON	3:1	10	40	180	1/2	4	136	1-1/2	3/4	1,2,3,4,7,9,14
FP-5	GRACO HUSKEY 647016	LUBE RM M119	WINDSHIELD WASHER	PNEUMATIC	DOUBLE DIAPHRAGM	1:1	7	10	100	1/2	2	8	1	1	1,2,3,4,5,6,14
FP-6	GRACO MONARCH 256714	LUBE RM M119	ENGINE COOLANT- BUS	PNEUMATIC	DOUBLE DIAPHRAGM	1:1	8	15	100	1/2	4	16	1	1	1,2,3,4,5,6,14
FP-7	GRACO FIREBALL 425 205935	LUBE RM M119	COMMON GREASE	PNEUMATIC	PISTON	50:1	130	23	150	1/2	2	4500	SLOTTED	3/8	2,3,4,9,10,14
FP-8	GRACO HUSKEY 647016	M113A	USED OIL	PNEUMATIC	DOUBLE DIAPHRAGM	1:1	70	25	120	1/2	50	50	15	1	2,3,4,5,11,14
FP-9	GRACO HUSKEY 647016	M113A	USED COOLANT	PNEUMATIC	DOUBLE DIAPHRAGM	1:1	70	25	120	1/2	50	50	15	1	2,3,4,5,11,14
FP-10	GRACO ADBLUE 24G745	M128A	DEF	PNEUMATIC	DOUBLE DIAPHRAGM	1:1	28	50	50	1/4	6.5	50	1/2	3/4	1,2,3,4,12,13,14
<div>NOTES:</div> <div>1. PROVIDE PRESSURE RELIEF KIT.</div> <div>2. PROVIDE AIR INLET AND FLUID OUTLET CONNECTING HOSE KITS. TUBING SIZE TO MATCH OUTLET SIZE OF PUMP.</div> <div>3. PROVIDE FILTER/REGULATOR/LUBRICATOR KIT WITH GAUGE AND AUTOMATIC TANK DRAIN VALVE ON THE AIR FILTER. PROVIDE TUBING AND 5 GALLON BUCKET FOR AIR FILTER TO DRAIN INTO.</div> <div>4. PROVIDE AIR GUARD RUNAWAY VALVE TO PROTECT PUMP.</div> <div>5. PUMP TO BE OF ALL ALUMINUM CONSTRUCTION.</div> <div>6. PROVIDE WALL MOUNT BRACKET, SUCTION HOSE KIT WITH LOW LEVEL CUT OFF, AND ALL NECESSARY COMPONENTS TO DRAW FROM A 55 GALLON DRUM OR TANK.</div> <div>7. PUMP TO BE MOUNTED TO FLUID TANK.</div> <div>8. PUMP TO HAVE STAINLESS STEEL LOWER UNIT COMPONENTS.</div> <div>9. PUMP TO HAVE EXTERNAL MUFFLER THAT OPERATES BELOW OSHA NOISE STANDARDS.</div> <div>10. PROVIDE STATIONARY SUPPLY STAND AND ALL NECESSARY COMPONENTS TO DRAW FROM A 55 GALLON DRUM INCLUDING TOPPER-INDUCTOR PLATE, ELEVATOR, AND CARRIAGE.</div> <div>11. PROVIDE DRUM STYLE ADAPTOR KIT , WALL MOUNT BRACKET, AND ALL NECESSARY COMPONENTS TO EXCAVATE USED OIL AND COOLANT RECEIVERS.</div> <div>12. PROVIDE WALL MOUNTING BRACKET, SUCTION HOSE KIT WITH LOW LEVEL CUTOFF, DEF METER, AND ALL NECESSARY COMPONENTS TO DRAW FROM THE TANK. REFER TO TANK PUMP SYSTEM DETAIL ON DRAWING Q201 FOR OVERFILL PREVENTION, INVENTORY MONITORING, AND ADDITIONAL COMPONENTS REQUIRED.</div> <div>13. PUMP TO BE CONSTRUCTED OF POLYPROPYLENE.</div> <div>14. PROVIDED MANUFACTURERS AND MODEL NUMBERS INDICATED ARE THE BASIS OF DESIGN PRODUCT. REFER TO SPEC SECTIONS FOR FURTHER INFORMATION.</div>															

FLUID STORAGE SCHEDULE (FS)									
ID #	MANUFACTURER MODEL No.	LOCATION	FLUID TYPE	TYPE	DIMENSIONS (L X W X H)	CAPACITY (GALLONS)	STYLE	ASSOCIATED EQUIPMENT	NOTES
FS-1	GRAINGER 2GTW5	LUBE ROOM M118	GEAR OIL	DRUM	-	55	-	FP-1	2
FS-2	CONTAINMENT SOLUTIONS LUBE CUBE	LUBE ROOM M118	ENGINE OIL - BUS	TANK	5'1"X3'10"X5'1"	500	DOUBLE WALL	FP-2	-
FS-3	CONTAINMENT SOLUTIONS LUBE CUBE	LUBE ROOM M118	ENGINE OIL - PARATRANSIT	TANK	4'10"X2'10"X4'1"	280	DOUBLE WALL	FP-3	-
FS-4	CONTAINMENT SOLUTIONS LUBE CUBE	LUBE ROOM M118	AUTOMATIC TRANSMISSION	TANK	5'1"X3'10"X5'1"	500	DOUBLE WALL	FP-4	-
FS-5	GRAINGER 4GY40	LUBE ROOM M118	WINDSHIELD WASHER	DRUM	-	55	-	FP-5	2,4
FS-6	CONTAINMENT SOLUTIONS LUBE CUBE	LUBE ROOM M118	ENGINE COOLANT	TANK	4'10"X2'10"X4'1"	280	DOUBLE WALL	FP-6	1,5
FS-7	GRAINGER 2GTW5	LUBE ROOM M118	COMMON GREASE	DRUM	-	55	-	FP-7	2
FS-8	CONTAINMENT SOLUTIONS LUBE CUBE	LUBE ROOM M118	USED OIL	TANK	5'1"X3'10"X5'1"	500	DOUBLE WALL	FP-8	-
FS-9	CONTAINMENT SOLUTIONS LUBE CUBE	LUBE ROOM M118	USED COOLANT	TANK	5'1"X3'10"X5'1"	500	DOUBLE WALL	FP-9	-
FS-10	MODERN WELDING COMPANY	UREA ROOM M128A	DEF	TANK	6'9"X4'4"	500	DOUBLE WALL	FP-10	3
NOTES: 1. PROVIDE CONCRETE HOUSEKEEPING PAD REFER TO STRUCTURAL DRAWINGS 2. PROVIDE EAGLE 1633 CONTAINMENT PALLET OR APPROVED EQUAL 3. TANK TO BE PROVIDED WITH 304 STAINLESS STEEL INNER TANK 4. DRUM TO BE CONSTRUCTED OF POLYETHYLENE									

REEL BANK SCHEDULE (RB)									
ID #	REEL/FLUID TYPE	MANUFACTURER MODEL No.	RATED PRESSURE (PSI)	BRANCH CONNECTION SIZE TO SINGLE REEL (IN)	REEL CONNECTION SIZE (IN)	HOSE SIZE (IN)	HOSE LENGTH (FT)	NOZZLE MANUFACTURER MODEL No.	NOTES
RB-1	DIESEL EXHAUST FLUID	GRACO XD30 HSD-D5B	50	3/4	3/4	3/4	50	GRACO 24F-529	1,2
RB-2	WINDSHIELD WASHER FLUID	GRACO XD20 HSL56B	300	1/2	1/2	3/8	65	GRACO 180-685	1,2
RB-3	COMPRESSED AIR	GRACO XD20 HSL65B	300	1/2	1/2	1/2	50	PARKER 251-6	2,3
	ELECTRICAL OUTLET	GRACO SD10 24M526	-	-	-	-	95	-	5
RB-4	COMPRESSED AIR	GRACO XD20 HSLC8B	300	3/4	1/2	1/2	75	PARKER 371-6	2,4
	ELECTRICAL OUTLET	GRACO SD10 24M526	-	-	-	-	95	-	5
RB-5	COMPRESSED AIR	GRACO XD20 HSL-C8B	300	1/2	1/2	1/2	75	PARKER 371-6	2,4
	ELECTRICAL OUTLET	GRACO SD10 24M526	-	-	-	-	95	-	5
	GEAR OIL	GRACO XD20 HSM65B	2000	1	1/2	1/2	50	GRACO SDP5 255352	2
	COMMON GREASE	GRACO XD20 HSH55B	4000	1 1/2	1/2	1/2	50	GRACO PRO SHOT 224872	2
	COMPRESSED AIR	GRACO XD20 HSL65B	300	1/2	1/2	1/2	50	PARKER 251-6	2,3
RB-6	ELECTRICAL OUTLET	GRACO SD10 24M526	-	-	-	-	95	-	5
	ENGINE COOLANT	GRACO XD20 HSM65B	2000	1/2	1/2	1/2	50	GRACO SDP5 255355	2
	AUTOMATIC TRANSMISSION FLUID	GRACO XD20 HSM65B	2000	3/4	1/2	1/2	50	GRACO SDP5 255351	2
	ENGINE OIL	GRACO XD20 HSM65B	2000	3/4	1/2	1/2	50	GRACO SDP5 255200	2
	ENGINE OIL- PARATRANSIT	GRACO XD20 HSM65B	2000	3/4	1/2	1/2	50	GRACO SDP5 255200	2
RB-7	COMPRESSED AIR	GRACO XD20 HSL65B	300	1/2	1/2	1/2	50	PARKER 371-6	2,4
	ELECTRICAL OUTLET	GRACO SD10 24M526	-	-	-	-	95	-	5
	ENGINE COOLANT	GRACO XD20 HSM65B	2000	1/2	1/2	1/2	50	GRACO SDP5 255355	2
	AUTOMATIC TRANSMISSION FLUID	GRACO XD20 HSM65B	2000	3/4	1/2	1/2	50	GRACO SDP5 255351	2
	ENGINE OIL	GRACO XD20 HSM65B	2000	3/4	1/2	1/2	50	GRACO SDP5 255200	2
	ENGINE OIL- PARATRANSIT	GRACO XD20 HSM65B	2000	3/4	1/2	1/2	50	GRACO SDP5 255200	2
NOTES: 1. PROVIDE STAINLESS STEEL BALL VALVE AT INLET TO REEL. 2. PROVIDE INLET HOSE KIT. 3. PROVIDE 1/4" PORT PUSH-TO-CONNECT INDUSTRIAL INTERCHANGE EXHAUSTING COMPRESSED AIR QUICK COUPLER. 4. PROVIDE 3/8" PORT PUSH-TO-CONNECT INDUSTRIAL INTERCHANGE EXHAUSTING COMPRESSED AIR QUICK COUPLER. 5. PROVIDE 18 AMP 12 AWG CORD AND INDUSTRIAL RECEPTACLE.									

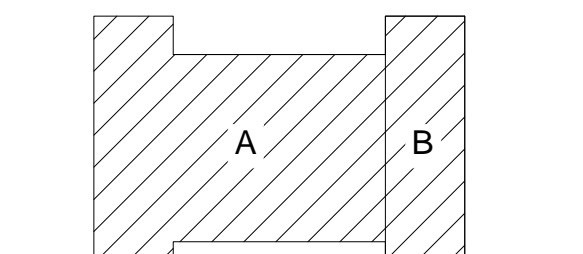
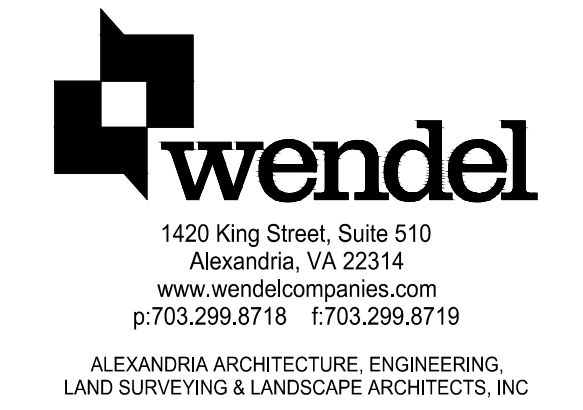


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